Ritesh Agarwal

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SUMMARY

A highly motivated and results-oriented software engineer with 14+ years of experience in C and distributed systems, leveraging expertise in building scalable and reliable software solutions.

EXPERIENCE

Lead Software Development Engineer
Apr 2024 - Present

Zscaler
Pune, MH, India

- Collaborated with cross-functional teams to define feature requirements and deliver multiple high-quality/impact customer-focused features, resulting in a measureable increase of Net Annual Recurring Revenue(NARR).
- Expedited resolution of critical blocker issues across development, release and production (mainline) branches, maintaining continuous delivery pipelines and ensuring production stability.
- Enhanced team productivity and code quality by triaging bugs for efficient resolution, conducting thorough code reviews, and mentoring team members to accelerate their contributions.
- Streamlined weekly reporting processes by gathering and summarizing team status, enhancing visibility into feature health for senior management and cross-functional partners.
- Acted as the on-call development engineer for the India Time Zone (IST), providing frontline support for production systems and resolving critical alerts and incidents on a rotational basis.
- Made use of structured interviewing techniques to ensure standardized, fair, and effective candidate evaluation, enhancing both candidate experience and organizational brand value.

SKILLS

- C, PostgreSQL, Redis, FreeBSD, RAFT, Perl, Shell Scripting, Python, Gdb, Data Strucutres, Algorithms, Gemini/ChatGPT GenAI, iocage, cmocka, PagerDuty, Jenkins, Vmware ESXi, Vmware vCenter, Recovery Point Objective (RPO), Recovery Time Objective (RTO), CyberSecurity, Distributed Systems

Lead Software Development Engineer
2019 - Apr 2024

Pubmatic
Pune, MH, India

- Developed and led multiple customer-targeted and strategic features and ensured that they were delivered with no open static code analyser warnings, 70-80% Cmocka Dev Unit Test coverage with Address Sanitizer checks, 80-90% QA Automation Coverage and small-scale A/B and Sanity production testing including backward-compatibility and end-to-end tests leading to multiple successful feature deliveries with high quality ensuring timely and smooth releases.
- Oversaw multi-geo week-long phased releases (20%, 50%, 100%) by analyzing KPIs between new and mainline code, providing timely and reliable go/no-go decisions at each stage to ensure production stability and enable successful and timely rollouts or necessary investigations/rollbacks.
- Enhanced feature visibility for senior management and cross-functional partners by streamlining weekly reporting, providing concise summaries of team status and key insights.
- Reduced surprise issues and design gaps by promoting truth table-based requirement discussions, ensuring comprehensive scenario analysis and early issue detection when costs are lowest.
- Guided an 8-member cross-functional Agile team (Development and QA) as Scrum Master and Team Lead, significantly enhancing Agile maturity from foundational Level 0 to advanced Level 4 through consistent encouragement and implementation of best practices.
- As Scrum Master for a distributed team (US/India), facilitated Agile ceremonies to align on acceptance criteria and dependencies, and drove a continuous improvement culture through post-sprint feedback, resulting in fewer re-opened stories, greater sprint comittment accuracy, and a tangible reduction in team impediments.
- Developed and deployed a suite of engineering tools for static code analysis, memory error detection (Address Sanitizer), and a containerized (Docker) development environment, leading to a significant improvement in code quality and developer efficiency.

SKILLS

- C, Go, Java, MySQL, Redis, Redis(TimeSeries), Aerospike, Snowflake, Apache Druid, InfluxDB, Analytics, Grafana, Adress Sanitizer, Docker, Codesonar, Zeppelin, Jupyter, Linux, clang, lex, yacc, JSON, Agile, Shell Scripting, Python, Gdb, Data Strucutres, Algorithms, cmocka, Jenkins, emacs, cscope, opengrok, WURFL, AdTech, Distributed Systems, REST APIs, multithreading

Senior Software Development Engineer
2015 - 2018

Cisco Systems   *San Jose, CA, US and Bengaluru, KA, India*

- Led the development and maintenance of core infrastructure components (Syslog, Sdwrap, Mtrack) for Cisco's Nexus Series, directly contributing to the stability and feature set of a market-leading networking product.
- As a key contributor to Cisco's Virtual Packet Core NFV platform, independently designed and implemented features and POCs, helped reach various Product Milestones of the strategic initiative.
- Made significant contributions to the Virtual Packet Core NFV platform through a series of milestone-driven features, including DPDK integration, Virtio/Pass-through/SRIOV POCs, Bulkstats implementation, and a 32-bit to 64-bit migration.
- Oversaw the complete lifecycle of lab equipment, from procurement and installation to daily usage of Cisco Nexus switches, Cisco UCS servers, and Cisco TOR switches, ensuring seamless development and testing workflows for the team.

SKILLS

- C, Socket Programming, Linux, KVM Virtualization, Vmware ESXi, Libvirt, QEMU, Valgrind, clang, Agile, Shell Scripting, Python, Gdb, Data Strucutres, Algorithms, Jenkins, emacs, cscope, opengrok, Distributed Systems, Networking, Syslog, NFV, Virtual Packet Core, Cisco Nexus, Cisco UCS, VLAN, Lab setup/management, UDP, TCP, make, tcpdump, wireshark, Coverity, TCP TLS, Cryptography, Memory Leak Detection, Linux Signal Handling, Linux Bringup, Virtual Memory, GDB core analysis, multithreading, DPDK (Data Plane Development Kit)

Graduate/Research Assistant
2013 - 2015

University of Illinois, Chicago   *Chicago, IL, US*

- Improved the reliability of the Ethos OS, a security-focused, paravirtualized OS on the Xen hypervisor, by re-architecting the handling of asynchronous IPC system calls. This C-based kernel feature, validated by extensive Go test suites, eliminated a key source of instability during program termination. Additionally, I produced high-quality LaTeXdocumentation to reflect these critical updates.
- Provided comprehensive IT administration for the Research Resources Center, supporting cutting-edge molecular biology research.
    * **Hardware:** Managed and maintained physical blade servers.
    * **Software & Services:** Administered ZFS, Samba, Git, mail, web, print, and database servers, as well as the underlying network infrastructure.

SKILLS

- C, Go, IPC(Inter Process Communication), Asynchronous System Calls, Linux, Xen Virtualization, clang, Shell Scripting, Python, Data Strucutres, Algorithms, emacs, cscope, Distributed Systems, Networking, Lab setup/management, ZFS, Samba, Git, MySQL, LaTeX

Graduate Intern
2013

Yahoo! Inc   *Sunnyvale, CA, US*

- Defined and implemented essential monitoring stats and dimensions for the Nicira SDN Solution based on cost-benefit analysis through multiple brainstorming sessions with the team. This enabled seamless integration with Yahoo's YAMAS and successful deployment in Yahoo's Openstack cloud, ensuring effective monitoring and demonstrating operational readiness within Yahoo's infrastructure.

SKILLS

- Open vSwitch, Nicira NVP/SDN(Software Defined Networking), Virtualization, Python, Shell Scripting, Cron, REST APIs

Software Development Engineer
2010 - 2012

Cisco Systems   *Pune, MH, India*

- Successfully completed an intensive training program and accelerated onboarding as a new engineer through practical, hands-on experience, quickly mastering processes to resourcefully address legacy issues, customer-reported bugs, and implement customer-targeted features, becoming a key contributor to the team.
- Followed a comprehensive bug-fixing process that involved close collaboration with the QA team for issue reproduction and root-cause analysis. Implemented fixes with thorough unit tests covering all relevant scenarios, and validated them through code reviews and private build regression suite runs.
- Delivered numerous features with high confidence, leveraging extensive code reviews and automated, pyATS-driven truth-table unit testing to minimize bugs and ensure timely release deployments. This proactive testing approach also effectively caught feature regressions stemming from bug fixes during development.

SKILLS

- C, Gdb, Linux, Valgrind, Make, Shell Scripting, Python, Gdb, Data Strucutres, Algorithms, emacs, cscope, Distributed Systems, Networking, Evolved Packet Core(3G/4G/UMTS/3GPP),ASR500, Coredumps, pyATS

Education

University of Illinois, Chicago

Master of Science in Computer Science *Chicago, IL, US*

- GPA: 3.9/4.0
- Relevant Coursework: Computer Networks, Computer Architecture, System Security, Algorithms, OOP/OOAD and Environment, Graph Theory.

Pune Institute of Computer Technology

Bachelor of Engineering in Information Technology *Pune, MH, India*

- GPA: 3.6/4.0

Skills

Languages: C (Proficient), Go, Python, Shell Scripting, Perl

Databases: MySQL, PostgreSQL, Redis, Aerospike, Apache Druid, Snowflake(Columnar), ElasticSearch

Software Engineering: Agile Methodologies (Certified and proven Scrum-master)

Tools: Git(Github/Bitbucket), Docker, Jenkins, Wireshark, Tcpdump

Code Browsing/Refactoring: emacs, cscope, etags, awk, sed

Code Debugging/Testing: gdb, cmocka, Valgrind, Address Sanitizer, pyATS, Gcov(code-coverage)

Virtualization: KVM/Qemu, VMWare ESXi, virtio, SR-IOV, PCI-Passhthrough

Technologies: REST API, JSON, Open vSwitch, Cloud Computing, Telecommunication

Kernel Hacking: ProcFS, DebugFS, Tracing, Kprobles, Workqueues, Device drivers, Block Device Driver